ashes, ft., is theoretically indifferent in which portion the gasification is effected a.nd what course, the gases take, and owing to this point of view the. most, varied constructions have been produced. l''<»r the production of gas for heating purposes one always selects the simplest pattern in which the gasification proceeds from below, and the gases, in conformity with Iheir natural buoyancy, are impelled upwards. The supply of oxygen, therefore, lakes place at the bottom, whore also the ashes are removed, whilst, the supply of fresh fuel and the discharge of the gases formed occurs a,t the top. The fuel sinks in the producer at all times and its movement is therefore in opposite direr!ion to (hat of the. gas. Formerly the bed of fuel rested on grates, the spaces in v,hich admitted (lie enl.ra.nce of oxygon into the .apparatus. The reaction zone, then lay on 01* immediately above the • q-ale bars, and when a givm amount, of ash bad accumulated ihereon, the working had to be interrupted in order to remove the a .lies, and with them the sensible heal, of the materials uitlidrawiu and often also a, not inconsiderable! portion of the converted fuel (coke) was lost. At the. present time, fro-queutU the j'raie is replaced by mea,ns of a, column of ashes formed naturally in the producer, through which the requisite amount of oxygen for (lie production of the, gas is driven. This remove . the sensible heal from the column of ashes and returns it to tin* producer; it also burns the last minute particles of carbonaceous material in the ashes, and thereby ilir \\;«;!e product is often free from carbon. Such an arrangement also permits of the employment of devices, enabling the cinders to be removed during working, so that the working of the producer becomes continuous.

The combination of oxygen and carbon evolves, as already remarked, it lurge quantity of available heat, the major ponton of \\hich is taken up by and curried away with the .'n-i*.-* produced. As these «';ases play against the carbon they come in contact with, they part with heat thereto until an equilibrium between them is established. Correspondingly to th»-heat recepthe po\\er of the fuel, the temperature in this chtlrivnl y.oiieh of height will vary, ami by sufficient massivo-ne' <-, theetTecihe columns of the fuel will be preheated nearly to